who is offered more than five years of treatment with tamoxifen might be wise to seek further advice.

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Teenage sex

Cognitive immaturity increases the risks

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The recent marriage of a 13 year old British girl to a 19 year old man in Turkey has caused a widespread outcry. In the ensuing debate, attention has focused on the large number of girls in Britain who are provided with contraception while under the age of consent. In 1993-4, 37 000 girls aged under 16 attended family planning clinics in England. We do not know how many of these girls were as young as 13, but, according to the Department of Health, for 15 year olds in the same year the rate was 14·2 per 100.[1] Very little has been written on the subject of when it becomes appropriate for a young person to embark on sexual relationships. How then are doctors and other health professionals to address the issue of under age sex? In practice, when is it reasonable to reassure worried parents that their child's sexual behaviour is not a cause for concern?

In England the law distinguishes between girls below the age of 13 and girls below the age of 16, the so called age of consent. With girls under 13, intercourse is always unlawful whatever the circumstances, whereas, with those under 16, a man may put forward a defence provided he is under the age of 24.[2] This distinction was made in law in 1888.[3] At present in Britain about one in five girls experience their first sexual intercourse before the age of consent. More than a quarter of boys will have experienced sex by the same age. Only 1% of women older than 55 years report that their first sexual experience occurred under the age of 16.[4] Over the past four decades, the median age of first intercourse has fallen by four years for women and three years for men.[4] This steady decline in age of sexual debut is explained only in part by a trend towards earlier age of menarche.[4] At the same time, there has been a tendency in Western societies to prolong the duration of adolescence. Never before has the gap between sexual and social maturity been so great.

The risks associated with teenage sex have been well documented. They include pregnancy, from which teenagers have an increased physical and psychiatric morbidity; cervical dysplasia, in which early onset of sexual activity is an important risk factor; and sexually transmitted disease, where rates, when adjusted for sexual activity, are greater for adolescents than for any other group.[5] Research has shown that teenagers who embark on sexual activity before the age of 16 take more risks than those who wait until after they are 16.[6] One American study has found that teenagers who started sexual relationships under the age of 13 were nine times more likely to report multiple partners than those who waited until they were 15 or 16.[7] It seems likely that the younger the age of first intercourse the greater the risks involved. Furthermore, in adolescence, sex is part of a wider spectrum of risk taking behaviour, in which substance abuse, smoking, alcohol consumption, and under age sex are more likely to occur in combination.[8,9] Some of this is to be expected, since experience and experimentation form an important part of adolescent cognitive growth. But there is a need to be alert to behaviour that reflects a pattern of self harm.

It is generally recognised that under age sex gives rise to problems, but the factors that might account for this are less well established. Cognitive immaturity is thought to explain the well documented tendency of this age group to avoid preventive action in spite of knowing the risks involved.[10] When contraceptives are used, cognitive immaturity may also explain their unreliable use. Further research is needed to explore the relation between sexual behaviour and cognitive development. We know that the frontal lobe of the brain, which deals with control of sexual drives as well as abstract reasoning and planning, is not completely myelinated until 14 or 15 years of age.[11] Major changes in cognitive ability occur between early and late adolescence, most notably the capacity to reason abstractly, predict future consequences, and see things from different perspectives. As these changes occur, the conception of the self as invulnerable diminishes and the impact of knowledge of risk increases. When guidance is offered to young people, it is more likely to be effective if it is presented in a form that is accessible to their level of cognitive development.

Few studies have looked at the importance of emotional or conduct disorders, but it seems that sexually active teenagers are more likely to be emotionally disturbed. In one study sexually active teenagers aged under 16 were found to be at increased risk of depression and suicide.[12] Other psychological factors such as levels of self esteem are also thought to play an important part in health related aspects of teenage behaviour.[13]

There are important psychological and emotional dimensions to the issue of under age sex, but awareness of these is not reflected in guidelines currently available to doctors. Is it enough simply to consider whether a girl is "competent and sensible"?[14] Without some sort of assessment of psychological maturity, many health interventions will miss their mark. There is a pressing need for work on the psychology of adolescence to be incorporated into the wider body of literature on teenage sex. More than one study has found that

a substantial proportion of women who lost their virginity under the age of 16 consider in retrospect that this was too young.[4 15] Little is known about the effect of early sexual intercourse on subsequent psychosexual functioning. The issue of whether a young person is ready to embark on a sexual relationship remains a complex one. The scale of morbidity currently associated with under age sex is sobering and suggests that, for many teenagers, sexual activity is far from appropriate.

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Being creative about rationing

An innovatory theory helps clearer thinking

Two of the biggest questions in health care are "How much money should we spend?" and "What should we spend it on?" We don't have adequate methods for answering either question, but Ronald Dworkin, professor of law in both Oxford and New York and one of the world's leading thinkers on medical ethics, has developed a theory that provides a means to begin to answer both questions. Last week he presented his "prudent insurance principle" at a meeting in London organised by the Institute for Public Policy Research.

Current practice with health care expenditure is based—more implicitly than explicitly—on what Professor Dworkin calls "the insulation model." This postulates that health care is fundamentally different from other goods, that equality of access is essential for health care because it is so different, and that when something can be done acutely to avoid death it should be done ("the rescue principle"). In the United States this principle has led to such inappropriate actions as huge sums being spent to separate Siamese twins joined at the heart even though one will inevitably die and the other has only a tiny chance of surviving and no chance of living a normal life. In Britain large sums of money have been spent to give the teenager Jaymee Bowen further treatment for her leukaemia even though the discomfort to her is high, the costs substantial, and the chances of her long term, symptom free survival small. The model is, said Professor Dworkin, neither "sensible nor sane": no society would spend all its resources on health care rather than on education, housing, or job creation; and nor would any individual. Anybody who devoted all of his or her resources to avoiding any chance of death would live a grossly diminished life.

Professor Dworkin also dismisses the idea that increased efficiency can avoid the problem of having to make hard choices about what can be afforded. When he examines this model he discovers that it necessitates excluding "low yield" procedures like breast screening in women under 50. But there is all the difference between "low yield" and "no yield" procedures, and people who advocate this model are really accepting the need for rationing. Resources might be allocated, some say, "on the basis of need with an eye to cost effectiveness." Professor Dworkin argues that this is a benign but unhelpful theory: it does not help answer the questions in practical terms. Because no ready theory is to hand and because the questions depend on deep cultural values where nobody is more expert than anybody else another argument is to leave it all to politics and politicians. But this will lead to decisions based on what will win votes rather than on what is rational.

Something better is needed. Professor Dworkin asked his audience to imagine a world with five characteristics: wealth is justly distributed, meaning for Professor Dworkin that people have roughly the same amount; information is available to all on all aspects of medicine and its effectiveness; people make decisions rationally; parents put their children's interests on the same level as their own; and nobody knows anything about genetic, cultural, or social predispositions to disease. In this imaginary world the government would abstain from providing health care, and people would be left to make their own decisions on which insurance policies to buy. Importantly, people would be obliged to decide what health problems to insure against and what intensity of treatment they should be covered for. Professor Dworkin claims that in such a world the amount and distribution of spending on health care would be just. People would decide rationally on how much to spend on health care as opposed to, say, education or housing, and people would make their own decisions on whether to buy a policy that gave them access to heart surgery until they were 75 years old or a much more expensive policy that gave them access until they were 90.

Doctors, who are practical people distrustful of theories, may not see any possible use for Professor Dworkin's theory. But economists, whose whole discipline is built on theories with equally fantastic assumptions, may be interested. Professor Dworkin argues that the theory can be useful for many decisions. Few people, he says, would buy a health insurance policy that offered them life saving treatment if they fell into a persistent vegetative state, and yet about 10 000 people in the United States are currently kept alive in such a state. Nor does he think there would be many takers for a policy that offered life saving treatment in the late stages of dementia. And, if they were faced with choosing between a policy that would deny them life saving treatment when they were known to be within four months of death and another much more expensive policy that offered all possible treatments, Professor Dworkin thinks that most people would opt for the first. In fact 40% of Medicaid expenditure is on people